



February 21, 2017

Mr. Dwight Hollifield
UC Synergetic, LLC
123 North White Street
Fort Mill, South Carolina 29715

**Subject: Letter of Findings for Graniteville-South Augusta 230kV Tie Line
Update of Protected Species Assessment for Urquhart-Graniteville #2 230kV Line
Aiken County, South Carolina
PEC Project No. 17-0900**

Dear Mr. Hollifield:

Palmetto Environmental Consulting, Inc. (PEC) is pleased to submit this correspondence to you regarding the Graniteville-South Augusta 230kV Tie Line (Augusta line) and the Urquhart-Graniteville #2 230kV Line (Urquhart line) in Aiken County, South Carolina (see attached Figure 1 for Augusta line). The Augusta line is approximately one mile in length and 100 feet in width, while the Urquhart line is approximately 17.6 miles in length and varies in width between 150 and 300 feet. UC Synergetic contracted PEC to perform a waters/wetland delineation and protected species assessment on the Augusta line and an update of the protected species assessment on the Urquhart line. The purpose of this letter report is to summarize our findings.

URQUHART LINE

History

Between April and July 2014, PEC conducted a waters/wetlands delineation for the Urquhart line. Subsequently, PEC submitted a Request for Jurisdictional Determination (JD) to the US Army Corps of Engineers (USACE) for approval of the delineation. The USACE issued a JD letter dated April 15, 2015, concurring with the delineation. During the same period, PEC conducted a protected species assessment on the Urquhart line, the results of which are provided in the October 8, 2014, report entitled "Federally-Listed Threatened and Endangered Species/State Rare, Threatened, and Endangered Species Assessment and Jurisdictional Waters/Wetlands Assessment." In short, the 2014 report states that no federally- or state-listed threatened or endangered species were found within the project corridor and appropriate habitat was present for multiple state-listed S1, S2, and S3 species.

Results of Updated Protected Species Assessment

During the week of February 13, 2017, PEC performed a protected species assessment on the Urquhart line. The SC Department of Natural Resources (SCDNR) state-protected species list at the time of the assessment was the same as the list referenced in the October 8, 2014, findings report. Since habitats within the project corridor were the same during the 2017 survey as they were during the 2014 survey, the results of the S1, S2, S3 species habitat assessment are still valid as

presented in the 2014 report. The state-listed threatened and endangered species list was also the same for the 2017 survey as the 2014 survey; the 2017 survey for these species revealed no occurrences within the corridor. The SCDNR known occurrences database had no changes from the 2014 information, so the results of known federal- and state-listed species occurring within one mile of the project corridor are still valid as presented in the 2014 report.

The 2017 survey for federally-protected species was conducted for the same species as presented in the 2014 report since the US Fish and Wildlife Service (USFWS) list of species occurring or having a possibility of occurring in Aiken County is the same for both years. The 2017 survey revealed no occurrences of federally-listed species within the project corridor.

AUGUSTA LINE

The purpose of this section is to provide the results of the federal and state protected species assessment and state species of concern habitat assessment, and a brief description of jurisdictional waters/wetlands located in the proposed Augusta line corridor. For purposes of the species assessment, PEC addresses only those species listed by the USFWS as federally threatened or endangered, and those species listed by SCDNR as:

- SE (State Endangered);
- ST (State Threatened);
- S1 (Critically Imperiled—At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors);
- S2 (Imperiled—At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors); or
- S3 (Vulnerable—At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors).

For S1, S2, and S3 species, PEC has only made a determination as to whether appropriate habitat for those species exists within the project corridor.

Site Description and Waters Results

The Augusta line corridor predominantly consists of cleared and developed areas within the existing Urquhart Station (Figure 1). A few small forested areas are located within the corridor and consist mainly of chinaberry (*Melia azedarach*), Chinese privet (*Ligustrum sinense*), Japanese privet (*Ligustrum japonicum*), loblolly pine (*Pinus taeda*), cherry (*Prunus serotina*), and various oaks (*Quercus* spp.). The easternmost forested area has a dense mid and understory. Select photographs are attached to the end of this document.

During the waters/wetland delineation, orange “Wetland Delineation” surveyor tape was placed at regular intervals along wetland/waters boundaries, and the location of each flag was collected with a Trimble GeoXH 6000 Series GPS unit. A map was created depicting the approximate boundaries of waters and wetlands within the project area (approximately 0.1 acre of wetlands and approximately 0.04 acre, or 100 linear feet, of stream [Savannah River], Figure 1, Photo 2). At the writing of this report, the delineation has not been verified by the USACE. PEC is preparing a Request for Jurisdictional Determination package to the USACE to gain their approval of the waters delineation.

The hydrologic source of the one wetland area (Wetland B, Figure 1 attached, Photo 4) flagged within the project corridor, as understood by PEC, is three stormwater outfall pipes located just inside the CSX railroad corridor that runs through Urquhart Station. The portion of Wetland B within the proposed line corridor has been cut in the past year or so. The vegetation in the rest of the wetland outside of the corridor remains intact and is comprised of saplings including sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), and sweet gum (*Liquidambar styraciflua*). Two stormwater ponds located at Urquhart Station are within the project corridor (Photos 5 and 7), but it is PEC's opinion that they are not waters that would fall under the jurisdiction of the USACE.

Protected Species Literature and Records Search

PEC personnel conducted a protected species literature and records search in February 2017 to determine the presence of known occurrences of federally- and state-listed animal and plant species on or within a one-mile radius of the project area. The literature and records search included review of the following resources:

- The USFWS South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species for Aiken County (last updated January 11, 2017);
- The SCDNR list of Rare, Threatened, and Endangered Species Known to Occur in Aiken County, last updated June 11, 2014; and
- The SCDNR Heritage Trust Program's Rare, Threatened, and Endangered Species Database GIS layer, last updated October 2016.

The literature and records search revealed no known occurrences of state or federally-listed species within a one-mile radius of the project corridor.

Seventy-one (71) species of federally- and state-listed plants and animals either occur or potentially occur in Aiken County. These species are summarized in Table 1 at the end of this document. Because of the large number of species listed for Aiken County, this report will address only those species for which appropriate habitat was located within the project area.

Species Descriptions and Results

Animals

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is primarily riparian, associated with rivers, coasts, and lakes, usually nesting near bodies of water where it feeds. Selection of nesting sites varies depending on the species of trees growing in a particular area, but in the Southeast, nests are constructed in dominant or codominant pines or cypress. Many nests are used annually. In South Carolina, bald eagles typically nest from October 1 through May 15.

While the bald eagle is no longer listed as federally threatened or endangered, it is still protected under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). Under BGEPA, the National Bald Eagle Management Guidelines protect habitat for the species although the protective buffers are smaller than the earlier requirements under the Endangered Species Act. Bald eagle is listed by SCDNR as State Endangered (SE). The SCDNR GIS layer reflects no known occurrence of this species within one mile of the project corridor. None were observed during field investigations.

Black Bear (*Ursus americanus*)

In coastal South Carolina, bears typically use early successional areas, bottomland hardwoods, or mixed pine-hardwoods as well as Carolina bays. Areas used less often include upland hardwoods, pine plantations, existing developments or areas currently being developed. The black bear is classified by SCDNR as an S3 species, and the database revealed no known occurrences of this species within one mile of the project area.

Plants

Small-flowered Buckeye (*Aesculus parviflora*)

Small-flowered buckeye occurs on moist, well-drained, shallow soils over limestone or loamy sands. It is classified by SCDNR as an S1 species, and the database revealed no known occurrences of this species within one mile of the project area.

Striped Garlic (*Allium cuthbertii*)

This species is found on granitic “flat-rocks” of the Piedmont and in sand on coastal plains. SCDNR has classified it as an S2 species. No occurrences were shown within one mile of the project area.

Piedmont Three-awned Grass (*Aristida condensata*)

This species grows on sandy hills and in pine and oak barrens in the southeastern United States. The literature and records search revealed no known occurrences within one mile of the project area. It is listed by SCDNR as an S2 species.

Bearded Milk-vetch (*Astragalus villosus*)

Bearded milk-vetch grows in sandhills, sandy open woods, pinelands, and disturbed sites. SCDNR classifies it as an S1 species. The literature and records search revealed no known occurrences within one mile of the project area.

Winter Grape-fern (*Botrychium lunarioides*)

Winter grape-fern can occur in open grassy places in prairies, cemeteries, and weedy roadsides. SCDNR classifies it as an S1 species. The literature and records search revealed no known occurrences within one mile of the project area.

Yellowwood (*Cladrastis kentukea*)

Yellowwood prefers moist, organic soils that drain well, but is adaptable to poor soils, dry soils, and soils of various pH. It does not tolerate wet soils. It is classified by SCDNR as an S1 species. The literature and records search revealed no known occurrences within one mile of the project area.

Rose Coreopsis (*Coreopsis rosea*)

This species can be found on shores of lakes and ponds, in and around wet depressions, and occasionally on river and stream shores. It does well on broad, open shorelines, where it tends to occupy the mid- to upper shoreline areas. Substrates are usually sand, gravel, or peat, or mixtures of these. It is classified by SCDNR as an S2 species. The literature and records search revealed no known occurrences within one mile of the project area.

Smooth Coneflower (*Echinacea laevigata*)

Smooth coneflower is typically found in open woods, glades, cedar barrens, roadsides, clearcuts, dry limestone bluffs, and power line rights-of-way, usually on magnesium and calcium rich soils associated with amphibolite, dolomite or limestone (in Virginia), gabbro (in North Carolina and

Virginia), diabase (in North Carolina and South Carolina), and marble (in South Carolina and Georgia). It occurs in plant communities that have been described as xeric hardpan forests, diabase glades or dolomite woodlands. Optimal sites are characterized by abundant sunlight and little competition in the herbaceous layer. Natural fires, as well as large herbivores, historically influenced the vegetation in this species' range. Many of the herbs associated with smooth coneflower are also sun-loving species that depend on periodic disturbances to reduce the shade and competition of woody plants. It is classified by USFWS as Federally Endangered (FE). The literature and records search revealed no known occurrences within one mile of the project area, and none were observed during field investigations.

False Rue-anemone (*Enemion biternatum*)

This species may be found in moist deciduous woods of valleys, flood plains, and ravine bottoms, occasionally in open pastures, often on limey soils. It is classified by SCDNR as an S1 species. The literature and records search revealed no known occurrences within one mile of the project area.

Eastern Wahoo (*Euonymus atropurpureus*)

Eastern wahoo is a shrub that prefers moist to mesic woodlands, shaded to partially shaded riverbanks, woodland borders, wooded slopes, small openings in wooded areas, and thickets. It is listed by SCDNR as an S1 species.

Biennial Gaura (*Gaura biennis*)

Biennial gaura is a native biennial plant that can inhabit prairies, open woods, and stream banks in shade to part shade with moist to dry soils. It is listed as an S1 species by SCDNR.

Red Standing-cypress (*Ipomopsis rubra*)

Red standing-cypress habitat consists of dry, sandy or rocky fields or open woods that contain well-drained sand, loam, or limestone. The literature and records search revealed one historic occurrence (last observed in 1981) of this S2 species within one mile of the project area.

Pyramid Magnolia (*Magnolia pyramidata*)

Pyramid magnolia is a slender, semi-deciduous tree that lives in rich woods and river bluffs, mostly coastal plain, sometimes in the lower piedmont. It is listed as an S1 species by SCDNR.

Nestronia (*Nestronia umbellula*)

Nestronia is a small shrub found in upland mixed pine and hardwood stands, pine stands, and growing with upland oaks and hickories. SCDNR has classified it as an S3 species.

Pine-leaved Golden Aster (*Pityopsis pinifolia*)

Pine-leaved golden aster can be found on Fall Line sandhills with open, scrub oak-longleaf pine vegetation. It sometimes occurs in cleared and cut over areas, and persisting in old fields, maintained rights-of-way, and pine plantations. It is classified by SCDNR as an S2 species. The literature and records search revealed no known occurrences within one mile of the project area.

Green-fringe Orchid (*Platanthera lacera*)

Green-fringe orchid habitat consists of sphagnum bogs, alluvial and swamp forests, stream banks, riparian meadows, sand flats, moist and seeping slopes, prairies, roadside banks, ditches, old fields, and borrow pits. It is classified by SCDNR as an S2 species. The literature and records search revealed no known occurrences within one mile of the project area.

Piedmont Azalea (*Rhododendron flammeum*)

Piedmont azalea is a deciduous shrub that prefers open dry woods, slopes and ridges, and stream bluffs. This species is classified S3 by SCDNR.

Sandhills Wild Petunia (*Ruellia caroliniensis* ssp. *ciliosa*)

This species is a wild petunia with blue or violet flowers that appear in the spring, summer, and autumn. It prefers sandy, upland, open woods. It is classified by SCDNR as an S1 species.

Pickering's Morning-glory (*Stylisma pickeringii* var. *pickeringii*)

Pickering's morning-glory is usually found in the driest, most barren, deep-sand areas and occasionally colonizes along roadsides and other disturbed areas. It is classified by SCDNR as an S1 species. The literature and records search revealed no known occurrences within one mile of the project area.

Aethusa-like Trepocarpus (*Trepocarpus aethusae*)

Aethusa-like trepocarpus can be located within margins of swamp forests and sandy river bottoms, and wet roadside ditches. It is classified by SCDNR as an S1 species. The literature and records search revealed no known occurrences within one mile of the project area.

Conclusion

No occurrences of federal or state listed threatened or endangered species were readily observed within the project area during field investigations. Potential habitat for 22 of the 71 federally- and state-listed species appears to be located within the proposed Augusta line corridor. Of these 22 species, two (2) are animals and 20 are plants.

Closing

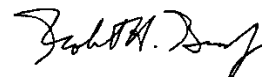
PEC appreciates the opportunity to provide this letter of findings to you. If you have any questions regarding this document, please contact Chris Lake at (803) 463-2764.

Sincerely,

PALMETTO ENVIRONMENTAL CONSULTING, INC.



Christopher M. Lake
President



Robert H. Bunch, Jr.
Vice President

Attachments: Table 1: Aiken County Species List
Annotated Photographs
Figure 1: Approximate Waters Map

Table 1. Federally- and State-Listed Species Occurring or Potentially Occurring in Aiken County

Scientific Name	Common Name	State/Federal Status or Rank	Known Occurrence within One Mile?	Habitat within Project Area?
<i>Acipenser brevirostrum</i> *	shortnose sturgeon	FE/SE	No	No
<i>Acipenser oxyrinchus</i> *	Atlantic sturgeon	FE	No	No
<i>Aesculus parviflora</i>	small-flowered buckeye	S1	No	Yes
<i>Allium cuthbertii</i>	striped garlic	S2	No	Yes
<i>Ambystoma tigrinum tigrinum</i> *	Eastern tiger salamander	S2S3	No	No
<i>Aristida condensata</i>	piedmont three-awned grass	S2	No	Yes
<i>Astragalus villosus</i>	Bearded milk-vetch	S1	No	Yes
<i>Botrychium lunarioides</i>	Winter grape-fern	S1	No	Yes
<i>Calamovilfa brevifolia</i>	Pine-barrens reed-grass	S1	No	No
<i>Carex cherokeensis</i>	Cherokee sedge	S2	No	No
<i>Carex collinsii</i>	Collins' sedge	S2	No	No
<i>Carex elliotii</i>	Elliott's sedge	S1	No	No
<i>Carex folliculata</i>	Long sedge	S1	No	No
<i>Carex socialis</i>	Social sedge	S1	No	No
<i>Cladrastis kentukea</i>	Yellowwood	S1	No	Yes
<i>Clemmys guttata</i> *	spotted turtle	ST	No	No
<i>Condylura cristata</i> *	star-nosed mole	S3	No	No
<i>Coreopsis rosea</i>	Rose coreopsis	S2	No	Yes
<i>Corynorhinus rafinesquii</i> *	Rafinesque's big-eared bat	SE	No	No
<i>Croton elliotii</i>	Elliott's croton	S2S3	No	No
<i>Cystopteris protrusa</i>	Lowland brittle fern	S2	No	No
<i>Delphinium carolinianum</i>	Carolina larkspur	S1	No	No
<i>Dirca palustris</i>	Eastern leatherwood	S2	No	No
<i>Echinacea laevigata</i>	smooth coneflower	FE	No	Yes
<i>Echinodorus tenellus</i>	Dwarf burhead	S2	No	No
<i>Eleocharis robbinsii</i>	Robbins spike-rush	S2	No	No
<i>Enemion biternatum</i>	False rue-anemone	S1	No	Yes
<i>Euonymus atropurpureus</i>	Eastern wahoo	S1	No	Yes
<i>Forestiera ligustrina</i>	Upland swamp privet	S2	No	No
<i>Gaura biennis</i>	Biennial gaura	S1	No	Yes
<i>Gopherus polyphemus</i> *	gopher tortoise	SE	No	No
<i>Halesia parviflora</i>	Small-flowered silverbell-tree	S2	No	No
<i>Haliaeetus leucocephalus</i> *	bald eagle	SE	No	Yes
<i>Hymenocallis coronaria</i>	Shoals spider-lily	S2	No	No
<i>Ilex amelanther</i>	Sarvis holly	S3	No	No
<i>Ipomopsis rubra</i>	Red standing-cypress	S2	No	Yes
<i>Kalmia cuneata</i>	White-wicky	S2	No	No
<i>Lindera subcoriacea</i>	Bog spicebush	S3	No	No
<i>Ludwigia spathulata</i>	Spatulate seedbox	S2	No	No
<i>Macbridea caroliniana</i>	Carolina bird-in-a-nest	S3	No	No
<i>Magnolia cordata</i>	Piedmont cucumber tree	S1	No	No
<i>Magnolia pyramidata</i>	Pyramid magnolia	S1	No	Yes
<i>Micrurus fulvius</i> *	Eastern coral snake	S2	No	No
<i>Mycteria americana</i> *	Wood stork	FE	No	No
<i>Myriophyllum laxum</i>	Piedmont water-milfoil	S2	No	No

Scientific Name	Common Name	State/Federal Status or Rank	Known Occurrence within One Mile?	Habitat within Project Area?
<i>Neotoma floridana floridana</i> *	eastern woodrat	S3S4	No	No
<i>Nerodia floridana</i> *	Florida green water snake	S2	No	No
<i>Nestronia umbellula</i>	nestronia	S3	No	Yes
<i>Nolina georgiana</i>	Georgia beargrass	S3	No	No
<i>Picoides borealis</i> *	red-cockaded woodpecker	FE/SE	No	No
<i>Pityopsis pinifolia</i>	Pine-leaved golden aster	S2	No	Yes
<i>Pituophis melanoleucus</i> *	pine or gopher snake	S3S4	No	No
<i>Platanthera lacera</i>	Green-fringe orchid	S2	No	Yes
<i>Ptilimnium nodosum</i>	harperella	FE	No	No
<i>Rana capito</i> *	gopher frog	SE	No	No
<i>Rhododendron flammeum</i>	Piedmont azalea	S3	No	Yes
<i>Rhynchospora inundata</i>	Drowned hornedrush	S2	No	No
<i>Ruellia caroliniensis</i> ssp. <i>ciliosa</i>	Sandhills wild petunia	S1	No	No
<i>Sagittaria isoetiformis</i>	Slender arrow-head	S3	No	No
<i>Sarracenia rubra</i>	Sweet pitcher-plant	S3S4	No	No
<i>Solidago auriculata</i>	Eared goldenrod	S1	No	No
<i>Sporobolus pinetorum</i>	Carolina dropseed	S2	No	No
<i>Stylisma pickeringii</i> var. <i>pickeringii</i>	Pickering's morning-glory	S1	No	Yes
<i>Syngonanthus flavidulus</i>	Yellow pipewort	S2	No	No
<i>Trepocarpus aethusae</i>	Aethusa-like trepocarpus	S1	No	Yes
<i>Tridens carolinianus</i>	Carolina fluff grass	S1	No	No
<i>Trillium lancifolium</i>	Narrow-leaved trillium	S1	No	No
<i>Trillium pusillum</i> var. <i>pusillum</i>	least trillium	S1	No	No
<i>Trillium reliquum</i>	relict trillium	FE	No	No
<i>Ursus americanus</i> *	black bear	S3	No	Yes
<i>Xyris brevifolia</i>	Short-leaved yellow-eyed grass	S1	No	No

ST – State Threatened

SE – State Endangered

FT – Federally Threatened

FE – Federally Endangered

*Denotes animal species

S1 – Critically Imperiled—At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S2 – Imperiled—At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

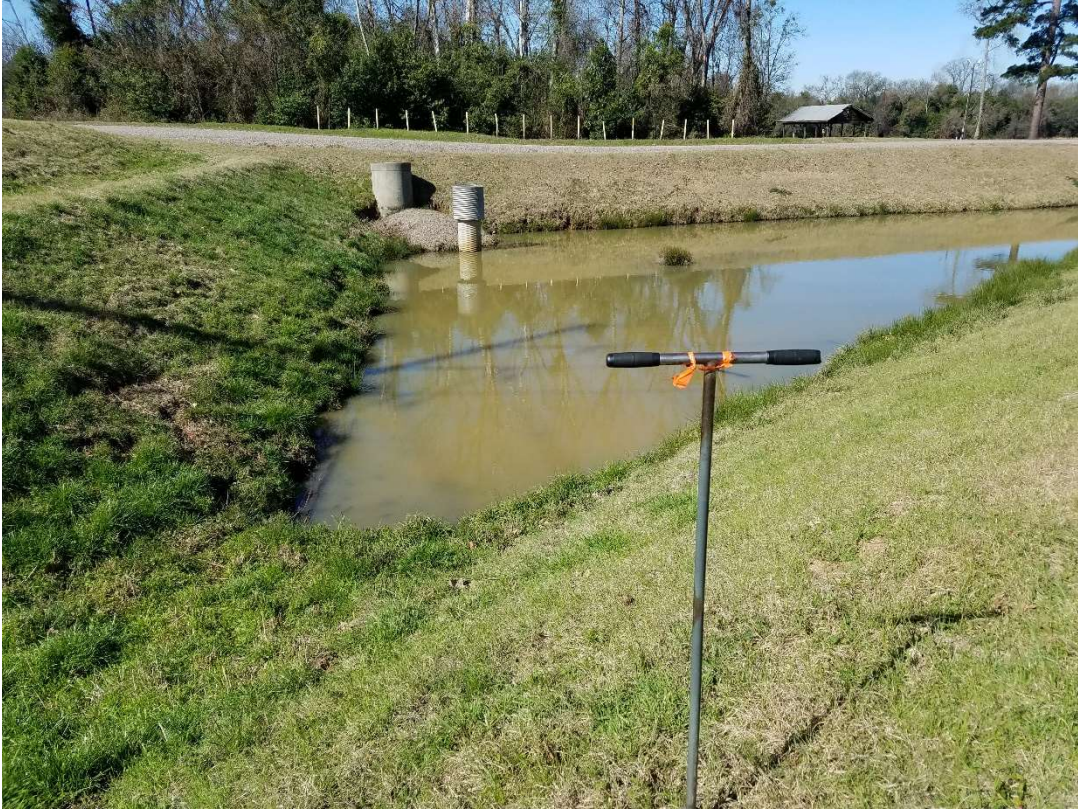
S3 – Vulnerable—At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.



Photograph 1. Floodplain adjacent to Savannah River, facing E.



Photograph 2. Savannah River, facing W.



Photograph 3. Nonjurisdictional stormwater pond 1, facing NW.



Photograph 4. Wetland B, facing NE.



Photograph 5. Nonjurisdictional stormwater pond 2, facing NW.



Photograph 6. Forested area, facing NW.



Photograph 7. East side of proposed corridor location, facing N.

